



**POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT**

I. IDENTIFICATION
01 STATE 02 SITE NUMBER
IL 3890008946

II. SITE NAME AND LOCATION

01 SITE NAME (proper, common, or descriptive name of site) Argonne National Laboratory-Illinois (ANL-IL) ENE 319 Landfill		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 9700 South Cass Avenue			
03 CITY Argonne	04 STATE IL	05 ZIP CODE 60439	06 COUNTY DuPage	07 COUNTY CODE 043	08 CON. DIST. 13
09 COORDINATES LATITUDE 4 1°42'5.0"		LONGITUDE 8 7°5 8'24.0			

10 DIRECTIONS TO SITE (starting from nearest public road)

SEE CONTINUATION SHEET

EPA Region 5 Records Ctr.



341939

III. RESPONSIBLE PARTIES

01 OWNER (if owner) U.S. Department of Energy (DOE-CH)		02 STREET (business, mailing, residential) 9800 South Cass Avenue	
03 CITY Argonne	04 STATE IL	05 ZIP CODE 60439	06 TELEPHONE NUMBER (312) 972-2271
07 OPERATOR (if owner and different from owner) Argonne National Laboratory		08 STREET (business, mailing, residential) 9700 South Cass Avenue	
09 CITY Argonne	10 STATE IL	11 ZIP CODE 60439	12 TELEPHONE NUMBER (312) 972-3998
13 TYPE OF OWNERSHIP (Check one) <input type="checkbox"/> A. PRIVATE <input checked="" type="checkbox"/> B. FEDERAL DOE-CH <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER _____ <input type="checkbox"/> G. UNKNOWN <small>(Specify)</small>			

Aubrey Smith
Envir. Compliance Officer

IV. OWNER/OPERATOR NOTIFICATION ON FILE (Check at this site)

☐ A RCRA 3001 DATE RECEIVED: ____/____/____ MONTH DAY YEAR ☐ B UNCONTROLLED WASTE SITE RCRA 103(a) DATE RECEIVED: ____/____/____ MONTH DAY YEAR ☒ C NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION <input checked="" type="checkbox"/> YES DATE 06/16/87 MONTH DAY YEAR <input type="checkbox"/> NO		BY (Check at this site) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input checked="" type="checkbox"/> F. OTHER DOE Environmental Survey <small>(Specify)</small>	
02 SITE STATUS (Check one) <input type="checkbox"/> A. ACTIVE <input checked="" type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN		03 YEARS OF OPERATION BEGINNING YEAR 1948 ENDING YEAR 1956 <input type="checkbox"/> UNKNOWN	

IV. DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

SEE CONTINUATION SHEET

IV. DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

The greatest potential hazard resulting from the site appears to be the potential for surface water or groundwater contamination.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2. If none is checked, complete Part 3 - Description of Hazardous Conditions and Remedies) <input type="checkbox"/> A. HIGH (inspection required promptly) <input checked="" type="checkbox"/> B. MEDIUM (inspection required) <input type="checkbox"/> C. LOW (inspect on time available basis) <input type="checkbox"/> D. NONE (no further action needed - complete current disposition form)			
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VI. INFORMATION AVAILABLE FROM

01 CONTACT Barry Fritz	02 OF Agency Organization DOE-CH, Operational & Envir. Safety Division		03 TELEPHONE NUMBER (312) 972-2271
04 PERSON RESPONSIBLE FOR ASSESSMENT C. L. Cheever	05 AGENCY DOE	06 ORGANIZATION ANL-IL	07 TELEPHONE NUMBER (312) 972-3311
08 DATE 04/06/88 MONTH DAY YEAR			

CONTINUATION SHEET

Part 1 - Site Information and Assessment

ANL-IL

IL 3890008946

ENE 319 Landfill

Directions to Site:

From I-55, exit Cass Ave. south. Turn west on Northgate Road and enter facility. The 319 area is located on the south side of ANL-IL. The ENE 319 Landfill was a gully located at the southeast end of Meridian Road and ENE of the later developed 319 Landfill.

Description of Substances Possibly Present, Known or Alleged

The landfill was developed at the beginning of the ANL-IL site development. There is no record of the total amount of material dumped into the landfill. The landfill was not intended to be used as a disposal site for radioactive materials. Wastes were supposedly monitored for radiation prior to disposal. It is possible that radioactive or toxic wastes may have inadvertently been discarded at the site.



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION
01 STATE IL 02 SITE NUMBER 3890008946

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply) <input checked="" type="checkbox"/> A SOLID <input type="checkbox"/> B POWDER, FINES <input type="checkbox"/> C SLUDGE <input type="checkbox"/> D OTHER <input type="checkbox"/> E SLURRY <input type="checkbox"/> F LIQUID <input type="checkbox"/> G GAS	02 WASTE QUANTITY AT SITE (Measure of waste quantity must be indicated) TONS 2,400 CUBIC YARDS NO. OF DRUMS	03 WASTE CHARACTERISTICS (Check all that apply) <input type="checkbox"/> A TOXIC <input type="checkbox"/> B CORROSIVE <input type="checkbox"/> C RADIOACTIVE <input type="checkbox"/> D PERSISTENT <input type="checkbox"/> E SOLUBLE <input type="checkbox"/> F INFECTIOUS <input type="checkbox"/> G FLAMMABLE <input type="checkbox"/> H IRRITANT <input type="checkbox"/> I HIGHLY VOLATILE <input type="checkbox"/> J EXPLOSIVE <input type="checkbox"/> K REACTIVE <input type="checkbox"/> L INCOMPATIBLE <input checked="" type="checkbox"/> M NOT APPLICABLE
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III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	ONLY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently used CAS numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE-DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	Hydrogen-3	10028-17-8	Landfill	105	pCi/liter
MES	Potassium-40	999	Landfill	21.4	pCi/liter
MES	Cesium-137	999	Landfill	0.3	pCi/liter
MES	Radium-226	999	Landfill	1.6	pCi/liter
MES	Thorium-228	999	Landfill	1.2	pCi/liter
MES	Thorium-232	999	Landfill	1.0	pCi/liter
MES	Barium	7440-39-3	Landfill	0.4	mg/liter
MES	Cadmium	7440-43-9	Landfill	0.8	mg/liter
MES	Chromium	7440-47-3	Landfill	0.6	mg/liter
MES	Lead	7439-92-1	Landfill	34.0	mg/liter

V. FEEDSTOCKS (See Appendix for CAS numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (See Appendix for references e.g., state has sample analysis reports)

SEE CONTINUATION SHEET

CONTINUATION SHEET

Part 2 - Waste Information

ANL-IL

IL 3890008946

ENE 319 Landfill

Sources of Information

- (2) Phase I CERCLA Program, ANL-IL Installation Assessment Report (required by DOE order 5480.14), July 1986, p. 30-31.
- (16) Letter to A. L. Toboas (DOE-CH) from E. Gale Pewitt (ANL-IL); Subject: ANL Environmental Sampling Reports for the 319 and ENE 319 Areas; October 26, 1987, with attachments; Sample 25593.
- (20) ANL-IL Intra-laboratory memo to D. P. O'Neil from N. W. Golchert; Subject: Results of the Analysis of the ENE 319 Landfill Samples; January 16, 1987, Samples 86W266, 86S14.



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
IL 3890008946

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED 23,000

02 ☐ OBSERVED (DATE _____)
04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

SEE CONTINUATION SHEET

01 ☐ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED _____

02 ☐ OBSERVED (DATE _____)
04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

01 ☒ C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED 0

02 ☒ OBSERVED (DATE _____)
04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

The landfill has been covered with topsoil and grass. The potential for air contamination is negligible.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED _____

02 ☐ OBSERVED (DATE _____)
04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

01 ☐ E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED _____

02 ☐ OBSERVED (DATE _____)
04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

01 ☒ F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED 1
ACRES

02 ☐ OBSERVED (DATE _____)
04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

The soil in the landfill could potentially be contaminated if radioactive or toxic wastes were disposed in the landfill.

01 ☒ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED 23,000

02 ☐ OBSERVED (DATE _____)
04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

SEE CONTINUATION SHEET

01 ☒ H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: 50 employees

02 ☐ OBSERVED (DATE _____)
04 NARRATIVE DESCRIPTION

☒ POTENTIAL ☐ ALLEGED

The potential for worker exposure to contaminated soil or water does exist for employees who enter the area for work, monitoring or inspection purposes. However, to date, no such exposure has been reported.

01 ☐ I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED _____

02 ☐ OBSERVED (DATE _____)
04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

CONTINUATION SHEET

Part 3 - Description of Hazardous Conditions and Incidents

ANL-IL

IL 3890008946

ENE 319 Landfill

Groundwater Contamination:

The potential for groundwater contamination exists. Groundwater in part of the ANL-IL facility is in the perched condition because of the relative impermeability of the underlying silty clay. This clay can restrict downward water flow and create a lateral perched water flow condition. The groundwater pattern in the area would probably follow the area topography, flowing southeasterly toward the Des Plaines River. Contaminated water may percolate downward into the perched groundwater and migrate in a southeasterly direction offsite. (Ref. (5) p. 1-2.)

Drinking Water Contamination:

In the vicinity of ANL-IL, only subsurface water (from both shallow and deep aquifers) and Lake Michigan water are used for drinking purposes. The potential for contamination of groundwater used for drinking purposes does exist. Two principal aquifers are used as water supplies in the vicinity of ANL-IL. The upper aquifer is the Niagaran-Alexandrian dolomite which is about 200 ft. thick in the ANL-IL area and has a piezometric surface between 50 and 100 ft. below the ground surface. The lower aquifer is the Galesville sandstone which lies between 490 and 1,500 ft. below the surface. Maquoketa Shale separates the aquifers and retards hydraulic connection between the aquifers.

The four domestic water wells currently in use at ANL-IL are about 300 ft. deep in the Niagaran dolomite. All four wells are located north of the site. The nearest well is approximately 1 mile northeast of the site. Groundwater in the area of the site probably flows toward the southeast.

The distance to the nearest well is 1 to 2 miles and a population of 3,000 - 10,000 is served. (These are the ranges which were used for HRS scoring of the site in Ref. 2.)

Population = 3,000 employees + 20,000 residents within 3 miles and north of the Des Plaines River.

(Ref. (1) p. 8, 12, Ref. (2) p. 6 and Attachment 1, Ref. (5) p. 1-2.)



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

L IDENTIFICATION
01 STATE 02 SITE NUMBER
IL 3890008946

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED

The potential for damage to flora in the immediate vicinity of the landfill does exist. To date, no damage to flora resulting from wastes disposed in the landfill have been observed.

01 ☒ K. DAMAGE TO FAUNA

04 NARRATIVE DESCRIPTION (include name(s) of species)

02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED

SEE CONTINUATION SHEET

01 ☐ L. CONTAMINATION OF FOOD CHAIN
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES
(Spills, runoff/leaking liquid/leaking drums)

03 POPULATION POTENTIALLY AFFECTED: _____

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: SEE CONTINUATION SHEET

IV. COMMENTS

V. REFERENCES OF INFORMATION (Cite specific references, e.g., State files, sample analysis, reports)

SEE CONTINUATION SHEET

CONTINUATION SHEET

Part 3 - Description of Hazardous Conditions and Incidents

ANL-IL

IL 3890008946

ENE 319 Landfill

Damage to Fauna:

The potential for damage to fauna due to ingestion of contaminated leachate is negligible. The site is covered with soil and grass so this provides a protective barrier between the landfill and local fauna. A number of animals freely wander the ANL-IL site and the surrounding forest preserve.

Total Population Potentially Affected:

23,000 (3,000 employees + 20,000 residents within 3 miles and north of the Des Plaines River.) (Ref. (1) p. 8.)

Sources of Information

- (1) 1986 Annual Site Environmental Report for Argonne National Laboratory (Report #ANL-87-9) by N. Golchert and T. Duffy.
- (2) Phase I CERCLA Program, ANL-IL Installation Assessment Report (required by DOE order 5480.14), July 1986.
- (3) 1988 Inventory of Federal Hazardous Waste Activities (for ANL-IL).
- (4) Environmental Assessment Related to the Operation of Argonne National Laboratory (DOE/EA-0181), August 1982.
- (5) ANL-IL Intra-laboratory memo, to N. W. Golchert, from S. Y. Tsai; Subject: Groundwater Monitoring Plan for the 317-319 Area; September 17, 1985.
- (6) Site Plan (ANL-IL Map), January 9, 1986.
- (7) ANL Map with PA legend, April 1988.

Summary Report for Preliminary Assessment of the ANL-IL

ENE 319 Landfill

4/13/88

The ENE 319 Landfill was the earliest ANL-IL landfill and was closed in 1956. The landfill is located at the west bank of a ravine. The landfill was not for radioactive or hazardous wastes but the potential exists that some of these materials could have inadvertently been disposed in the landfill. Debris was dumped over the bank and was later covered over with earth.

Environmental monitoring at the site has been of surface water and soil. Conditions are generally comparable to ambient analyses except for some metal turnings in a soil coring.

Recommendations: (1) Continue environmental monitoring assessment.

(2) Complete Site Investigation (SI).

ARGONNE
NATIONAL
LABORATORY

intra-laboratory memo

February 16, 1988

TO: File

FROM: C. L. Cheever *CLC*

SUBJECT: 319 Landfill and ENE 319 Landfill

T. Astorino advised that there were three trenches about 250 feet long by 60 feet wide by 12 feet deep and that the total weight of trash, including the mound, is roughly estimated at 30,000 tons.

The ENE 319 landfill is estimated to contain 2,400 tons of trash.

CLC:gl

cc: File: ENE319

**ARGONNE
NATIONAL
LABORATORY**

 RECEIVED
 C. L. CHEEVER
 WASTE OPERATIONS MANAGER
 ENVIRONMENTAL COORDINATOR

INTRA-LABORATORY MEMO

JAN 19 87

INFO

HANDLE

January 16, 1987

CLC

RWD

WHK

WLM

ERT

SSD/OHS

SSD/OHS

To: D. P. O'Neil

From: N. W. Golchert *NWG*Subject: Results of the Analysis of the ENE 319 Landfill Samples

Part of Recommendation EP-86-8 in the DOE-CH Environmental Protection Appraisal conducted May 27, 1986 to June 10, 1986, required the Laboratory to conduct a sampling program at the former landfill ENE of the 319 Facility. The purpose of the sampling and analysis was to comply with the Phase II DOE CERCLA characterization program, to confirm the presence or absence of hazardous waste at this location or migration from this area. In order to characterize the radiological condition of the ENE landfill, water and sediment samples were collected in the spring and fall from the drainage alongside the landfill, and six shallow subsurface soil samples were collected in the fall.

The results of the analyses of these samples is collected on the attached table. All measured concentrations are consistent when compared to the off-site control samples collected as part of the Environmental Monitoring Program. These results are published in ANL-86-13. There is no evidence that any radioactive material is buried in this area or is migrating from this former landfill.

 NWG:rb
 Attachment

 cc: C. L. Cheever
 N. W. Golchert
 R. A. Wynveen

FORMER LANDFILL ENE OF THE 319 FACILITY

Sample Number Date Collected

Water (Concentrations in pCi/L)

		<u>Nonvolatile Alpha</u>	<u>Nonvolatile Beta</u>	<u>Hydrogen-3</u>
86W266	6/25/86	0.8 ± 0.2	5.3 ± 0.3	105 ± 96
86W513	11/11/86	0.4 ± 0.2	6.2 ± 0.4	< 100

Sediment (Concentrations in pCi/g)

		<u>Potassium-40</u>	<u>Cesium-137</u>	<u>Radium-226</u>	<u>Thorium-228</u>	<u>Thorium-232</u>
86BS17	6/25/86	15.5 ± 0.5	0.2 ± 0.1	1.1 ± 0.1	0.8 ± 0.1	0.6 ± 0.1
86BS24	11/11/86	15.0 ± 0.6	0.1 ± 0.1	1.4 ± 0.1	0.8 ± 0.1	0.7 ± 0.1

Soil (Concentrations in pCi/g)

		<u>Potassium-40</u>	<u>Cesium-137</u>	<u>Radium-226</u>	<u>Thorium-228</u>	<u>Thorium-232</u>
86S14	9/3/86	21.4 ± 0.8	0.3 ± 0.1	1.6 ± 0.1	1.2 ± 0.1	1.0 ± 0.1
86S15	9/3/86	22.9 ± 0.8	0.1 ± 0.1	1.4 ± 0.1	1.0 ± 0.1	0.8 ± 0.1
86S116	11/25/86	20.6 ± 0.8	0.4 ± 0.1	1.4 ± 0.1	1.1 ± 0.1	0.9 ± 0.1
86S117	11/25/86	20.7 ± 0.8	0.4 ± 0.1	1.4 ± 0.1	1.0 ± 0.1	0.9 ± 0.1
86S118	11/25/86	18.3 ± 0.8	0.3 ± 0.1	1.4 ± 0.1	1.1 ± 0.1	0.9 ± 0.1
86S119	11/25/86	18.5 ± 0.7	0.2 ± 0.1	1.5 ± 0.1	0.9 ± 0.1	0.8 ± 0.1